REGIONAL SIGNAL TIMING PROGRAM

2009 CYCLE PROGRAM GUIDELINES

October 16, 2008

Applications due by 2:00 p.m. Friday, November 14, 2008

METROPOLITAN
TRANSPORTATION
COMMISSION

Metropolitan Transportation Commission
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland CA 94612-3500
www.mtc.ca.gov
www.bayareatrafficsignals.org

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1 Introduction

Traffic signal coordination is a cost-effective way of reducing vehicle emissions, improving mobility, and enhancing safety on arterials. The 2001 Regional Transportation Plan provides $1.2 million per year in federal funds for the Regional Signal Timing Program (RSTP), beginning in 2003/04. There are approximately 7,000 traffic signals in the Bay Area, and about half of them currently operate as part of a coordinated system. The RSTP will retime the coordinated signals at least once every five years, or about 500 signals per year. MTC retains consultants to provide technical assistance to local jurisdictions for traffic signal coordination projects that they define.

The goals and objectives of the RSTP are as follows:

1. Improve reliability and predictability of travel along arterial roads.
   - Develop and implement signal coordination plans (a.m., midday, p.m.) that reduce travel time and delay.
   - Develop and implement multi-jurisdictional signal coordination plans.
   - Develop and implement signal coordination plans based on the throughput of people rather than vehicles. Develop and implement flush plans for arterials that are used as diversion routes in the event of freeway incidents, if funded by local agencies.
   - Develop and implement special event timing plans for arterials near special event traffic generators, if funded by local agencies.
   - Develop and implement optimized actuated settings for fully actuated signals to minimize queuing during non-peak periods.
2. Improve air quality through decreased motor vehicle emissions and fuel consumption.
   - Develop and implement signal coordination plans that reduce starts and stops and promote uniform travel speeds.
   - Develop and implement transit signal priority plans that make transit a more attractive travel option.
3. Improve the safety of motorists, pedestrians, and bicyclists.
   - Collect pedestrian and bicyclist volume data at the same time as vehicle count data at intersections to be coordinated.
   - Incorporate collected information into Traffic Signals Database.
   - Develop and implement signal coordination plans that promote uniform travel speeds, thereby reducing rear-end collisions.
   - Review existing pedestrian crossing times and bicycle detection at intersections to be coordinated, and recommend adjustments as necessary.
   - Review collision history for patterns that are susceptible to correction through signal timing and recommend adjustments as necessary.
4. Provide streamlined program administration and project management.
   - Provide high-quality technical assistance in a cost-effective manner
   - Require local agency review and approval of timing plans prior to implementation or provide a peer review option
   - Provide a portion of local agency staff time costs on larger projects (over 50 intersections)

- Use data on number of projects completed within schedule and budget to guide assignment of projects to consultants

2 Applicants

2.1 Applicant Eligibility

The applicant for RSTP funds must be a Bay Area public agency that will assume the responsibility of sponsoring the project and is either responsible for operating traffic signals or authorized to act on behalf of the agencies that operate traffic signals within the project limits. The applicant may apply on behalf of other agencies that operate traffic signals within the project limits by providing letters of support from those agencies or having them sign the application. Applicants for projects that involve Caltrans traffic signals are strongly encouraged to coordinate their application with Caltrans at least two weeks prior to the deadline. All agencies that are involved in a project must provide the following:

1) Provide staff time to review and implement the timing plans developed as part of the project (except as provided in the following paragraph)
2) Commit to completing the project by mid-November, unless otherwise approved by MTC
3) Be willing and able to indemnify MTC.

Agencies that do not have staff to review and implement timing plans may apply or participate in a project, but must agree to implement timings based on a peer review and be willing to indemnify the reviewer, as described in Section 2.6 of these Program Guidelines. For projects involving over 50 signals, agencies may be eligible for reimbursement of a portion of associated staff costs. Eligibility for peer review and staff time funding will be determined at the sole discretion of MTC.

2.2 Project Eligibility

To be eligible for RSTP funds, a project must involve the coordination of at least four (4) traffic signals that, through interconnection or reliable time sources, are currently capable of coordinated operation or will be within sixty (60) days of the project application deadline. Projects that involve traffic signals that have been coordinated within the past three years are ineligible, unless a significant change in peak hour traffic volume can be demonstrated. Projects that involve development of traffic signal coordination plans for future traffic volumes are also ineligible.

2.3 Project Categories

2.3.1 Eligible Work Types

1) Signal coordination for weekday morning, midday, and/or afternoon peak periods;
2) Transit priority for weekday morning, midday, and/or afternoon peak periods;
3) Signal coordination for additional scenarios, such as weekday off-peak, weekends, special events, or flush plans, if for the same signals addressed in (1) or (2) above and is either paid

for by the local agency under a separate contract between the local agency and the consultant or funded under MTC's Traffic Engineering Technical Assistance Program (TETAP).

2.3.2 Eligible Project Types

1) One Arterial for One Jurisdiction (Example: Castro Valley Bl. for Alameda County)
2) One Arterial for Many Jurisdictions (Example: Hesperian to Union City Bl. for San Leandro, Hayward, and Union City)
3) Multiple Arterials for One Jurisdiction (Example: Mission and Market for San Francisco)
4) Multiple Arterials for Adjacent Jurisdictions (Example: Treat Bl, Ygnacio Valley Rd, and Kirker Pass Rd for Concord, Walnut Creek, and Pleasant Hill)
5) Area-Wide for One Jurisdiction (Example: Downtown Oakland)
6) City-Wide for One Jurisdiction (Example: all major arterials in Napa)
7) City-Wide for Adjacent Jurisdictions (Example: all major arterials in Richmond, San Pablo)

2.4 Project Evaluation Criteria

Applications are evaluated according to the following criteria:

Category	Definition	Evaluation Criteria	Point Assignment
Safety	Highest 2002 Office of Traffic Safety ranking of total fatal & injury collisions by population group among participating agencies	50th percentile or below 51st to 75th percentile 76th percentile and above	0 10 20
Mobility	Extent of project that will benefit major roadways, as defined by Caltrans' Functional Classification of Streets and Highways	Mostly Urban Collector to Mostly Other Principal Arterial or Higher	0 - 20
System Efficiency	Extent of project participants' commitment to efficiency in terms of definition of project limits, optimization of actuated settings and left-turn phasing, and maintenance of coordinated timings	Little to Significant	0 – 30
Multi-Jurisdiction Involvement	Number of jurisdictions involved in the project (city or town, county, Caltrans, and transit property for transit priority project)	1 agency 2 3 4 or more	0 5 10 15
Air Quality	Location of project within the air shed of a monitoring station that has exceeded 1-hour national or state ozone standard for at least once in the last three years	No Exceedance Exceeded state standard only Exceeded national & state standard	0 10 20
Person-Throughput	Extent of project that will benefit the 2001 Lifeline Transportation Network	None to All	0 – 20

Transit Priority	Percentage of traffic signals that will provide or update transit priority	None to All	0 - 20
		Maximum Possible Points	*145*

Please note that if MTC receives applications totaling less than 550, MTC may evaluate the applications based only on the eligibility requirements described in Section 2.2.

2.5 Application

- To request funds under the RSTP, an applicant must fill out and submit to MTC five (5) copies of the application form provided in Appendix A.

2.6 Waiver of Claims and Indemnification

Receipt of an RSTP grant is contingent on the local agency's willingness to enter into an agreement with MTC to: (1) waive any and all claims against MTC for any loss liability or damages resulting from this program (directly or indirectly); and (2) indemnify, hold harmless, and defend MTC against any and all third party claims that may result from the agency's participation in the program. An agency that requires peer review assistance will also be required to sign such an agreement in favor of the peer reviewer. A sample indemnification agreement is included in Appendix E (pdf version). For a word version please go to http://www.mtc.ca.gov/services/arterial_operations/events.htm

See Section 3.4 of these Program Guidelines for information regarding consultant liability.

Agencies that have participated in the 2008 Cycle of the program are not required to submit another Waiver of Claims and Indemnification Agreement. All other agencies (sponsor and participants) are encouraged to review Appendix E with their attorneys to obtain preliminary approval before submitting an application. The waiver and indemnification agreement is not required to be included with the application but will be required within thirty (30) days of notification that the agency has been selected for participation in the program.

2.7 Local Agency Approvals

MTC does not require applicants to furnish proof of permission to apply from local elected officials, such as City Councils. Securing any and all required approvals from local governing bodies are the responsibility of each applicant.

3 Consultants

3.1 Qualifications

All RSTP consultants have the following qualifications:

1. Lead staff with applied knowledge of, and expertise in:
   a. the principles of traffic signal timing and signal coordination;
   b. hardware and software used for traffic signal systems;
   c. analysis of recent collision history for susceptibility to correction through traffic signal timing and coordination; and,
   d. accommodating the needs of all users of arterials, including motorists, pedestrians, bicyclists, transit patrons, and transit vehicles in the context of traffic signal timing and coordination.
2. Lead and technical staff with experience in:
   a. the use of micro-simulation software for optimization of arterial signal coordination;
   b. implementation of timing plans using legacy and modern traffic signal system software and hardware; and,
   c. operation and programming of different types of controllers.
3. Lead staff with eight (8) or more years of experience in the areas of expertise noted above and California Civil or Traffic Engineer registration; and technical staff with three (3) or more years of experience in the areas of areas of expertise noted above.
4. Scope of Work: The services to be performed by CONSULTANT shall consist of services requested by the Project Manager or a designated representative including, but not limited to, the following:

0. Program Kick-Off

At the beginning of each annual cycle, CONSULTANT will meet with MTC Project Manager and other Program consultants to discuss Program guidelines and standardization of services, deliverable formats, and project administration.

1. Project Start-Up

1.1 Project Kick-Off Meeting – CONSULTANT will schedule a meeting with the project sponsor, other involved agencies, and MTC Project Manager or designated representative to kick-off the project; establish communication channels and protocols; discuss the scope of work, schedule, and budget; gather available information; and obtain a thorough understanding of the goals for the project. Specific topics to discuss include the two-hour period for turning movement data collection and times to collect travel time data.

1.2 Preparation of Detailed Workscope, Schedule, and Budget – CONSULTANT will prepare a detailed workscope, schedule, and budget (DWSB) for review and approval by the project sponsor, other involved agencies, and MTC Project Manager. CONSULTANT will

finalize the DWSB based on comments received from the project sponsor, other involved agencies, and MTC Project Manager.

Deliverable 1: Final Detailed Workscope, Schedule, and Budget

2. Analysis of Existing Conditions

CONSULTANT will collect and analyze all information necessary to thoroughly understand existing traffic conditions in the study area and be able to develop optimal time-of-day traffic signal coordination plans and transit signal priority plans, if applicable.

2.1 Data Collection – CONSULTANT will collect existing conditions data including, but not limited to, the following:

2.1.1. From the project sponsor and other involved agencies, CONSULTANT will collect existing timing sheets, existing coordination plans, traffic signal as-built drawings, aerial photos, maps, and collision diagrams for the study intersections, if available.

2.1.2. From the project sponsor and other involved agencies, including transit properties, if any, CONSULTANT will collect signal timing and signal priority preferences, including, but not limited to, those related to pedestrian and bicycle timing, leading and lagging left-turn phasing, and conditional service, as well as the timing optimization software preference.

2.1.3. CONSULTANT will conduct weekday two-hour peak period turning movement counts at all study intersections, including pedestrian and bicycle counts, and seven-day 24-hour machine counts at strategic locations to determine periods of coordination. All counts shall be taken during times and days that are representative of the times and days for which coordination plans will be developed. It is preferred that all counts be summarized in MS Excel format. Electronic files shall be named in accordance with a naming convention to be specified by MTC.

2.1.4. CONSULTANT will conduct a field review of all study intersections and street segments to verify lane geometry, speed limits, storage lengths, signal phasing, distances between intersections, and crosswalk lengths, unless the information is available through other sources such as aerial photos and speed surveys. CONSULTANT will conduct a field review at key intersections to measure queue lengths and saturation flows for heavy movements.

2.1.5. CONSULTANT will conduct a field review to observe typical traffic patterns during the weekday peak periods for which coordination plans will be developed. CONSULTANT will note factors that are expected to affect signal progression including, but not limited to: intersections with high pedestrian or bicyclist volumes; over-saturated intersections; uneven lane distribution; high volumes of trucks and buses; high-volume unsignalized intersections, including interchanges; parking maneuvers; presence and location of bus stops, etc.

2.1.6. CONSULTANT will verify signal coordination and transit priority capabilities of existing equipment and communications infrastructure. CONSULTANT will take digital photos of the controller cabinet and the contents of the controller cabinet. The digital photos may be taken during timing plan implementation, at the discretion of CONSULTANT.

2.1.7. CONSULTANT will conduct travel time and delay studies, including number of stops, at key corridors during times and days that are representative of the times and days for which coordination plans will be developed. A minimum of four runs shall be conducted for each direction for each peak period. Travel time and delay studies shall be conducted using the floating car method. The time of performance of the travel time and delay studies will be defined at the kick-off meeting.

2.2 Analysis of Existing Conditions – CONSULTANT will analyze the data obtained from Task 2.1 as follows:

2.2.1 As permitted by the project stakeholders, CONSULTANT will review initial and actuated settings for each study intersection to identify opportunities to minimize delay during non-coordination periods and enhance pedestrian and bicyclist safety. The analysis shall include, but not be limited to, review of minimum and maximum green settings; yellow and red times; pedestrian timing; and gap, extension, and reduction settings.

2.2.2 CONSULTANT will review collision diagrams for the study intersections, if available, to identify patterns that are susceptible to correction through signal timing.

2.2.3 Using software specified by the project sponsor, CONSULTANT will develop a model of the study area and calibrate the model based on field observations of existing conditions. Signal coordination optimization software may include, but not be limited to, Synchro, TRANSYT 7-F, or PASSER. Transit signal priority modeling software may include, but not be limited to, VISSIM or Paramics. CONSULTANT will calibrate the model based on travel time and delay studies and field observations of queue lengths and saturation flows for heavy movements at key intersections.

2.2.4 CONSULTANT will summarize the results of the existing conditions analyses in an Existing Conditions Technical Memorandum. At a minimum, the Memo will include: description of the roadway network and surrounding land uses, including a map showing the study intersections; description of traffic volumes, including day-to-day variability and directionality; description of traffic signal controllers and communication capabilities; identification of factors that are expected to affect progression; results of analysis of initial and actuated settings; description of collision patterns that may be susceptible to correction through signal timing; measures of effectiveness, including delay, number of stops, and travel time from the travel time and delay studies, and fuel consumption and emissions using a

methodology specified by MTC; and model calibration results, including a summary of changes to the optimization software's default values. CONSULTANT may be required to meet with the project sponsor and other involved agencies to present and discuss the results of the Memo. CONSULTANT will finalize the Memo based on comments received from the project sponsor, other involved agencies, and MTC Project Manager.

Deliverable 2:	Draft and Final Existing Conditions Technical Memorandum, including computer model with existing timings

3. Development of Draft Recommendations

CONSULTANT will develop recommendations of optimal initial and actuated settings; time-of-day coordination plans and hours of coordinated operation; and transit signal priority plans and hours of operation, if applicable. Development of optimal time-of-day coordination plans shall include analyses of signal grouping; phasing and phase sequence, including conditional service; cycle lengths, splits, and offsets. CONSULTANT will summarize recommendations in a Recommendations Technical Memorandum. The Memo shall also include a comparison of existing and proposed timings and a description of expected improvements. CONSULTANT will finalize the Memo based on comments received from the project sponsor, other involved agencies, and MTC Project Manager.

Deliverable 3:	Draft and Final Recommendations Technical Memorandum, including computer model with recommended timings

4. Implementation and Evaluation

CONSULTANT will implement and evaluate the approved improvements as follows:

4.1 CONSULTANT will prepare for review and approval by the project sponsor and other involved agencies appropriate timing sheets based on the approved timing plans. CONSULTANT will revise the timing sheets based on comments received from the project sponsor and other involved agencies.

4.2 CONSULTANT will implement, or assist agency staff in the implementation of, the new settings and timings. Implementation may have to be done in the field or from a central location, depending upon communication capabilities and agency preferences.

4.3 CONSULTANT will fine-tune, or assist agency staff in the fine-tuning of, the new settings and timings. CONSULTANT will fine-tune timings in the field and record all changes. Fine-tuning shall be conducted during times and days that are representative of the times and days for which coordination plans were developed.

4.4 CONSULTANT will conduct travel time and delay studies, including number of stops, at the key corridors identified under Task 2.1.7. Travel time and delay studies shall be conducted during times and days that are representative of the times and days for which

coordination plans were developed. A minimum of four runs shall be conducted for each direction for each peak period. Travel time and delay studies shall be conducted using the floating car method.

4.5 CONSULTANT will provide to the MTC Project Manager electronic files of all traffic counts, and controller and cabinet information, in a file-naming convention specified by MTC.

4.6 CONSULTANT will calculate measures of effectiveness of the improved system, including delay, number of stops, travel time, fuel consumption, emissions, benefit:cost, and cost effectiveness for emissions reductions. The methodology for calculating fuel consumption, emissions, benefit:cost, and cost effectiveness for emissions reductions will be specified by MTC.

4.7 CONSULTANT will prepare a Final Timings and Evaluation Technical Memorandum, which will include but not be limited to: the final periods of coordination; changes between the timings recommended under Task 3 and the final timings that were implemented; the number of locations where changes were made to better accommodate pedestrians and/or bicyclists; and the results of the evaluation of measures of effectiveness.

Deliverable 4A:	Revised Timing Sheets
Deliverable 4B:	Final Timings and Evaluation Technical Memorandum, including Final Timing Sheets and computer model with final timings

5. Additional Services

For complex projects, such as those involving transit signal priority, cut-through traffic, multiple traffic signal systems, cross-coordination, etc., CONSULTANT may be requested to perform services in addition to those described above. Such services may include, but are not limited to, additional meetings, field visits, studies, fine-tuning, etc. Should additional services be requested, CONSULTANT shall include a detailed description of such additional services, a staffing plan, and a man-hour estimate in its DWSB. The scope of these services, as well as the fixed price to be added to the base fee per intersection set forth in Article 3B, will be negotiated on a case-by-case basis. Additional services may also be requested by CONSULTANT after the DWSB has been approved by requesting an amendment to the approved DWSB.

6. Reduced Services

CONSULTANT may be requested to perform only some of the services described under Tasks 1 through 4 above in cases where agency staff wish to perform some of the services themselves. Should reduced services be requested, CONSULTANT shall identify in its DWSB which tasks will be performed by the CONSULTANT and which will be performed by the agency. The fee for reduced services shall be a percentage of the base fee per intersection set forth in Article 3B that is commensurate with the proportion of the services to be performed by CONSULTANT. Deliverables will be negotiated on a case-by-case basis.

3.2 Budget and Basis of Payment

3.2.1 Budget for Basic Signal Coordination

MTC pays consultants a fixed fee based on the following fee schedule.

Service (Tasks 0 through 4)	Amount Due*
Time-of-day signal coordination with timings implemented remotely from intersection, e.g., via dial-up or from traffic management center	$2200 per intersection for three scenarios $2050 per intersection for two scenarios
Time-of-day signal coordination with timings implemented in the field	$2400 per intersection for three scenarios $2200 per intersection for two scenarios

* Scenario = two-hour morning, off-peak/midday, or afternoon weekday peak period

3.2.2 Budget for Additional Services

MTC recognizes that some projects may be complex and may require additional analyses, e.g. those involving transit signal priority, cut-through traffic, multiple traffic signal systems, cross-coordination, etc. The budget for the additional services portion of these projects is based on the nature of the technical assistance requested by the project sponsor, and is finalized at the project kick-off meeting.

3.2.3 Basis of Payment

MTC pays consultants by deliverable based on the following payment schedule. Payment is authorized after both the project sponsor and MTC have approved the deliverable.

Task	Deliverables (#)	Payment
1.	Final Detailed Workscope, Schedule and Budget (#1)	5% of Base Project Budget
2.	Draft Analysis of Existing Conditions Technical Memorandum (#2)	35% of Base Project Budget
2.	Final Analysis of Existing Conditions Technical Memorandum (#2)	10% of Base Project Budget
3.	Draft Recommendations Technical Memorandum (#3)	15% of Base Project Budget
3.	Final Recommendations Technical Memorandum (#3)	10% of Base Project Budget
4.	Revised Timing Sheets (#4a)	10% of Base Project Budget
4.	Final Timings and Evaluation (#4b)	15% of Base Project Budget
5.	Additional Services	To Be Negotiated

Consultant Liability and Insurance

3.2.4 Indemnification of MTC and Client Jurisdictions

Consultants are required to indemnify MTC and all client jurisdictions. In addition to the indemnification, consultants are required to include MTC and all client jurisdictions as additional insureds under their general commercial liability insurance. Indemnification provisions from MTC's contract with the consultants are included in Appendix F.

3.2.5 Insurance Requirements

Consultants are required to maintain insurance coverage during the term of the contract with MTC at the levels described in Appendix G, including professional liability insurance in the amount of $1,000,000. Each policy or policies shall include MTC and all client jurisdictions as additional insureds and an endorsement providing that such insurance is primary insurance and not insurance of MTC or any client jurisdiction will be called on to contribute to a loss.

4 Process

4.1 Administrative Responsibility

MTC will administer and manage the RSTP. This includes serving as the recipient of the federal funds; providing local matching funds; contracting with consultants; approving consultant deliverables; paying consultant invoices; and obligating federal funds through Caltrans.

4.2 Call for Projects

The Call for Projects occurs once per year in the last quarter of the year. Applicants are given approximately 1½-2 months for preparation of the application. All applications received by the deadline shown in the application form are evaluated by a panel consisting of staff from MTC. The panel will rank the applications based on the project evaluation criteria described in Section 2.

4.3 Grant Award

The list of successful project applications is posted at www.bayareatrafficsignals.org under Events and Deadlines approximately 2-2½ months after the solicitation for projects is released. Grants are awarded in the form of consultant assistance. Ten percent of the available $1.125 million will be reserved for contingencies. Unsuccessful project sponsors may reapply in subsequent cycles.

4.4 Consultant Selection

MTC retains three to five consultants every two years to provide technical assistance under the RSTP. A request for qualifications (RFQ) is released every two annual cycles, during the last quarter of the year. A panel consisting of staff from MTC and other public agencies evaluates all statements of qualifications (SOQs) that are received by the deadline stated in the RFQ.

4.5 Consultant Assignment

Sponsors are asked to indicate their consultant preferences. Project assignments will be based, to the extent possible, on project sponsor preferences. It is MTC's intention to assign and majority of the projects to the two consultants whose contracts are being renewed. Project assignment in the second year of the contract will reflect sponsor preference and the consultant's performance in the prior year.

Project Delivery

The assigned consultant contacts the project sponsor, other involved agencies, and MTC to schedule the kick-off meeting for the project. The kick-off meeting provides an opportunity to

establish communication channels and protocols; discuss the scope of work, schedule, and budget; gather available information; and discuss the sponsor's goals with the consultant.

All necessary technical correspondence occurs between the project sponsor, other involved agencies, and the consultant. MTC is copied on all technical correspondence. The role of MTC is to ensure that high quality, timely, and within-budget technical assistance is provided for the agreed upon scope of work. Any changes to the scope of work agreed upon at the kick-off meeting are subject to MTC approval.

All agencies that own or operate traffic signals within the project limits, as well as MTC, are required to review consultant deliverables in a timely fashion. MTC's review of deliverables focuses on adherence to the approved scope of work. Consultants are paid by deliverable by MTC after both the project sponsor and MTC have approved the deliverable.

Deliverable review time is set during the kick-off meeting. Deliverables that are not reviewed within the agreed upon review time will be automatically approved by MTC. Any changes to the agreed upon schedule are subject to MTC approval.

4.6 Consultant Evaluation

At the conclusion of each project, project sponsors are required to fill out and return to MTC a confidential consultant evaluation form. MTC uses the results of the evaluation to determine the number of projects that are assigned to the consultant in the following year of the consultant contract and as a reference for future evaluations.

4.7 Timeline

	Task	Deadlines for 2008 and 2009 Cycles
0.	Program Kick-Off	Late-January
1.	Project Start-Up	
	Kick-Off Meetings	Mid-February
	Detailed Workscope, Schedule, and Budget	Late February or Early March
2.	Analysis of Existing Conditions	
	Data Collection	March & April
	Analysis	May
3.	Draft Recommendations	June & July
4.	Implementation and Evaluation	Implementation by November; Evaluation by December

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Appendix A Application Form

The application form may also be downloaded from www.bayareatrafficsignals.org under Events & Deadlines.

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General Instructions

Download application: www.mtc.ca.gov/services/arterial_operations/downloads/RSTP/RSTP_App.doc. **Applications must be received by 2:00 p.m. on Friday, November 14, 2008. Submit five (5) copies** of the completed application, including attachments, to:

Leela Immadisetty
Metropolitan Transportation Commission
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland CA 94607-4700

1) GENERAL INFORMATION

a) Project Title

Provide a descriptive and distinctive name for the project

b) Project Sponsor and Contact Information:

Name, Title
Organization
Mailing Address Line 1
Mailing Address Line 2
Telephone Number, Fax Number, E-Mail

c) Other Participating Agencies and Their Roles:

List cities, towns, county, transit agency, school district, Caltrans, etc. and the role of each agency with respect to the project. List agencies that own and/or operate traffic signals within the project limits first.

d) Work Type(s): *Check all that apply.*

[ ] Weekday Peak Period Time-of-Day Traffic Signal Coordination:
[ ] Weekday AM [ ] Weekday Midday [ ] Weekday PM

Notes: *(1) Checking all three scenarios will not adversely affect the applicant's chances of receiving funding. (2) Check the weekday midday box if unsure about whether signal coordination would be warranted, but would like the consultant to conduct the analysis.*

[ ] Weekday Transit Signal Priority

e) Project Type: *Check one.*

[ ] One Arterial in One Jurisdiction
[ ] One Arterial in Many Jurisdictions
[ ] Multiple Arterials in One Jurisdiction
[ ] Multiple Arterials in Many Jurisdictions
[ ] Area-Wide in One Jurisdiction
[ ] City-Wide in One Jurisdiction
[ ] City-Wide in Adjacent Jurisdictions

2) PROJECT INFORMATION

a) Project Description:

Description: *Provide a list of all intersections to be retimed and a map of the project, including project limits, jurisdiction boundaries, location of signals, signal systems, subsystem boundaries, controller types, and existing coordination capabilities (interconnect, WWV, GPS, etc.).*

b) Available Data: *Check all that apply.*

[ ] Timing Sheets
[ ] Coordination Plans
[ ] Traffic Signal As-Builts
[ ] Aerial Photos
[ ] Signal Timing Preferences
[ ] Transit Priority Preferences
[ ] Computer Model
[ ] Three Years Collision Data

Additional Information: *Describe exceptions and provide clarifications as necessary.*

c) Are all the traffic signals that will be retimed as part of the project currently equipped with clocks that can be automatically synchronized to a common time reference (via interconnect, WWV, or GPS)?

[ ] Yes [ ] No

Additional Information: *If no, provide explanation.*

d) Are all traffic signals that will be retimed as part of the project currently running in free operation, or if coordinated, has it been at least three (3) years since the last time the coordination plans were updated?

[ ] Yes [ ] No

Additional Information: *If no, provide explanation.*

e) Describe any and all known factors outside of the RSTP consultant's control that may require a schedule extension beyond project completion by mid-December 2009.

Indicate if none. For traffic signal-related construction, provide list of affected locations, estimated time for procurement, and construction completion. For roadway construction, describe affected locations and estimated time for construction completion.

f) Additional Services

Describe project elements that may require additional services from the consultant beyond those that are conducted for typical signal coordination projects, including but not limited to: transit signal priority, cut-through traffic, multiple traffic signal systems, cross-coordination, special or unique signal phasing, high-volume unsignalized intersections, etc.

DEMONSTRATION OF SUPPORT AND APPLICATION SIGNATURES

Attach letters of support from all participating agencies other than Caltrans or have an official from the other participating agencies sign this application along with the project sponsor. By providing letters of support and/or signing the application, the signator affirms that the statements contained in the application are true and complete to the best of their knowledge.

Signature	Signature	Signature
Name/Agency	Name/Agency	Name/Agency

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Appendix B Sample Application Form

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General Instructions

Please read all instructions carefully. All sections must be completed. Failure to provide required information or failure to prepare the application in accordance with the instructions may result in your application being disqualified.

The entire application form must be submitted. For additional information, please refer to the Program Guidelines. **All applications must be received by 4:00 p.m. on Thursday, December 30, 2004.** Applications submitted after that time will not be considered. Submit six (6) copies of the completed application, including all attachments, to:

Christina Atienza
Metropolitan Transportation Commission
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland CA 94607-4700

1) GENERAL INFORMATION

a) Project Title

Pittsburg and Antioch Major Arterials

b) Project Sponsor and Contact Information:

Joel McDaniel, Civil Engineer II
City of Pittsburg
65 Civic Avenue
Pittsburg CA 94565
Tel (925) 252-4924, Fax (925) 252-6928, E-Mail jmcdaniel@ci.pittsburg.ca.us

c) Other Participating Agencies and Their Roles:

(1) City of Antioch – key project participant responsible for operation of some traffic signals within project limits; (2) Caltrans – key project participant responsible for operation of some traffic signals within project limits

d) Responsibilities and Requirements:

All participating agencies that own, operate, or maintain traffic signals within the project limits will be required to:

- Indemnify MTC per the requirements listed in Section 2.6 of the Program Guidelines;
- Provide staff time to review the timing plans developed by the assigned consultant OR if peer review is granted, indemnify the peer reviewer;
- Review deliverables in a timely fashion to facilitate project completion by mid-November 2005, unless otherwise approved by MTC;
- Provide permission to the assigned consultant to enter data into relevant portions of the Traffic Signals Database.

Do all participating agencies agree to the above requirements?

[x] Yes [ ] No

Exceptions: *Caltrans has an existing agreement with MTC*.

e) Work Type(s): *Check all that apply.*

[x] Weekday Peak Period Time-of-Day Traffic Signal Coordination:
[x] Weekday AM [x] Weekday Midday [x] Weekday PM

Notes: *(1) Checking all three scenarios will not adversely affect the applicant's chances of receiving funding. (2) Check the weekday midday box if unsure about whether signal coordination would be warranted, but would like the consultant to conduct the analysis.*

[ ] Weekday Transit Signal Priority

[ ] Traffic Signal Coordination for Additional Scenarios: (must be paid for by local agency)
[ ] Weekday Off-Peak [x] Weekend [ ] Special Event
[ ] Incident [ ] Traffic Responsive [ ] Other: *specify*

[x] Check here if it is the applicant's intent to apply for Traffic Engineering Technical Assistance Program (TETAP) funds for any of the additional scenarios.

f) Project Type: *Check one.*

[ ] One Arterial in One Jurisdiction
[ ] One Arterial in Many Jurisdictions
[ ] Multiple Arterials in One Jurisdiction
[x] Multiple Arterials in Many Jurisdictions
[ ] Area-Wide in One Jurisdiction
[ ] City-Wide in One Jurisdiction
[ ] City-Wide in Adjacent Jurisdictions

2) PROJECT INFORMATION

a) Project Description:

Description: *The project is to retime 89 traffic signals along major arterials in Pittsburg and Antioch, including: Railroad, Lone Tree, Hillcrest/Deer Valley, Leland/Loveridge, Somersville, Buchanan, and Bailey. See attached list of signals and map.*

b) Available Data: *Check all that apply.*

[x] Timing Sheets
[x] Coordination Plans
[x] Traffic Signal As-Builts
[x] Aerial Photos
[x] Signal Timing Preferences
[ ] Transit Priority Preferences
[ ] Computer Model
[x] Three Years Collision Data

Additional Information: *Aerial photos available in 1:200. Only two years worth of SWITRS data is available for Pittsburg arterials.*

c) Are all the traffic signals that will be retimed as part of the project currently capable of coordination and if appropriate, transit signal priority?

[x] Yes [ ] No

Additional Information: *N/A*

d) For any of the traffic signals that will be retimed as part of the project, has it been it been at least three (3) years since the last retiming effort?

[x] Yes [ ] No

Additional Information: *N/A*

e) Describe any and all known factors outside of the RSTP consultant's control that may require a schedule extension beyond project completion by mid-November 2005.

(1) Controller upgrade project for the five signals along Buchanan. New controllers have been purchased. Estimated completion date in February 2005. (2) New GPS clocks for two Caltrans signals at SR 4/Lone Tree interchange. Procurement scheduled for January 2005. Estimated completion date in March 2005. (3) Sewer line work on Railroad north of Buchanan scheduled for Summer 2005. (4) Signal modification at Railroad/Buchanan. New poles on back-order for eight weeks. Estimated completion date in early Summer 2005.

f) Potential to Enhance Safety:

Referring to www.ots.ca.gov/cgi-bin/rankings.pl and Appendix C of the Program Guidelines, list for all participating cities or counties the 2002 ranking by population for total fatal and injury collisions.

Agency	Ranking
Antioch	88/92
Pittsburg	80/92

g) Potential to Improve Mobility and Potential to Increase Person Throughput:

MTC will conduct an analysis using a geographic information system to determine 1) the extent of the project that will benefit major roadways, as defined by Caltrans' Functional Classification of Streets and Highways; and 2) the extent of the project that will benefit the 2001 Lifeline Transportation Network. *Each participating agency should review the list of signals within their jurisdiction that are included in MTC's Traffic Signals Database to ensure that all of the signals within the project limits have been geocoded. The list of signals is available at www.bayareatrafficsignals.org/current.htm under Traffic Signals Database.*

Are all signals within the project limits included in the Traffic Signals Database?

[ ] Yes [x] No

Additional Information: *Need to add signal at Railroad/Castlewood Dr*

h) Potential to Enhance System Efficiency:

Need:

Bailey, Railroad, Loveridge, Somersville, Lone Tree, and Hillcrest provide direct access to State Route 4. Leland and Buchanan are parallel to State Route 4 and are frequently used as alternate routes of travel for east-west regional through traffic. The most recent retiming effort was conducted for Railroad Av in 1999. The arterials are four to six lanes wide, each carrying an average daily traffic volume of over 20,000. New development and changes in travel patters of local and regional through traffic in response to severe congestion along State Route 4 have rendered the old timing plans obsolete.

Rationale for Project Definition:

All are key arterials within Pittsburg and Antioch: five lead directly to State Route 4 and two are heavily used as bypass routes during severe congestion along State Route 4. All signals within

each subsystem are within ¼-mile of another signal. All jurisdictions that should be involved are involved in the project.

Optimization of Actuated Settings:

Consultants will be available to review actuated settings for each study intersection to minimize delay during non-coordinated periods and enhance pedestrian and bicyclist safety. The analysis may include review of minimum and maximum green settings; yellow and red clearances; pedestrian timing; gap, extension, and reduction settings; phase sequence; feasibility of conditional service for protected left-turn movements; and skipping phases.

Are all participating agencies willing to have the assigned consultant provide some or all of the above services?

[x] Yes [ ] No

Additional Information: *Must use Caltrans standards for Caltrans signals and Pittsburg standard of 1.5-second all-red phase. All other settings may be reviewed.*

Maintenance Program:

Actuated setting are changed in response to resident complaints. Coordination plans have not been updated since 1999.

i) Potential to Improve Air Quality:

Select from the following the monitoring station closest to the project and enter into the table below. **(Hint: Double-click on the table to edit.)**

- For North Counties: Napa, San Rafael, Santa Rosa, Vallejo
- For Coast and Central Bay: Oakland, San Francisco, San Pablo
- For Eastern District: Bethel Island, Concord, Fairfield, Livermore, Pittsburg
- For South Central Bay: Fremont, Hayward, Redwood City, San Leandro
- For Santa Clara Valley: Los Gatos; San Jose, 4th Street; San Jose East; San Martin; Sunnyvale

Closest Monitoring Station: *Pittsburg*

Year	Days Exceeded 1-Hr Nat'l Std	Days Exceeded 1-Hr State Std	Days Exceeded 8-Hr Nat'l Std
2003	0	0	0
2002	0	4	2
2001	0	2	1
Total	**0**	**6**	**3**

j) Potential to Increase Transit Use:

Description: *N/A*

For how many traffic signals will transit priority be provided or updated? ## % of Total

3) PROJECT COST ESTIMATE

a) Basic Signal Coordination

Fill in the following table for the time-of-day signal coordination element of the project (no transit priority). Do not change the unit cost values. **(Hint: Double-click on the table to edit.)**

Project Phase	No. of Signals per Implementation Scenario		No. of Timing Plans (2 or 3)	Subtotal Cost
	From Remote Location	At Controller		
1	71	18	3	$149,550
2				$0
3				$0
4				$0
5				$0
6				$0
7				$0
8				$0
			Total Cost Estimate	**$149,550**

b) Additional Services

Would like consultant to make recommendations relating to bicycle detection along Railroad Avenue and study effects of implementing an all-pedestrian phase at Railroad/Buchanan.

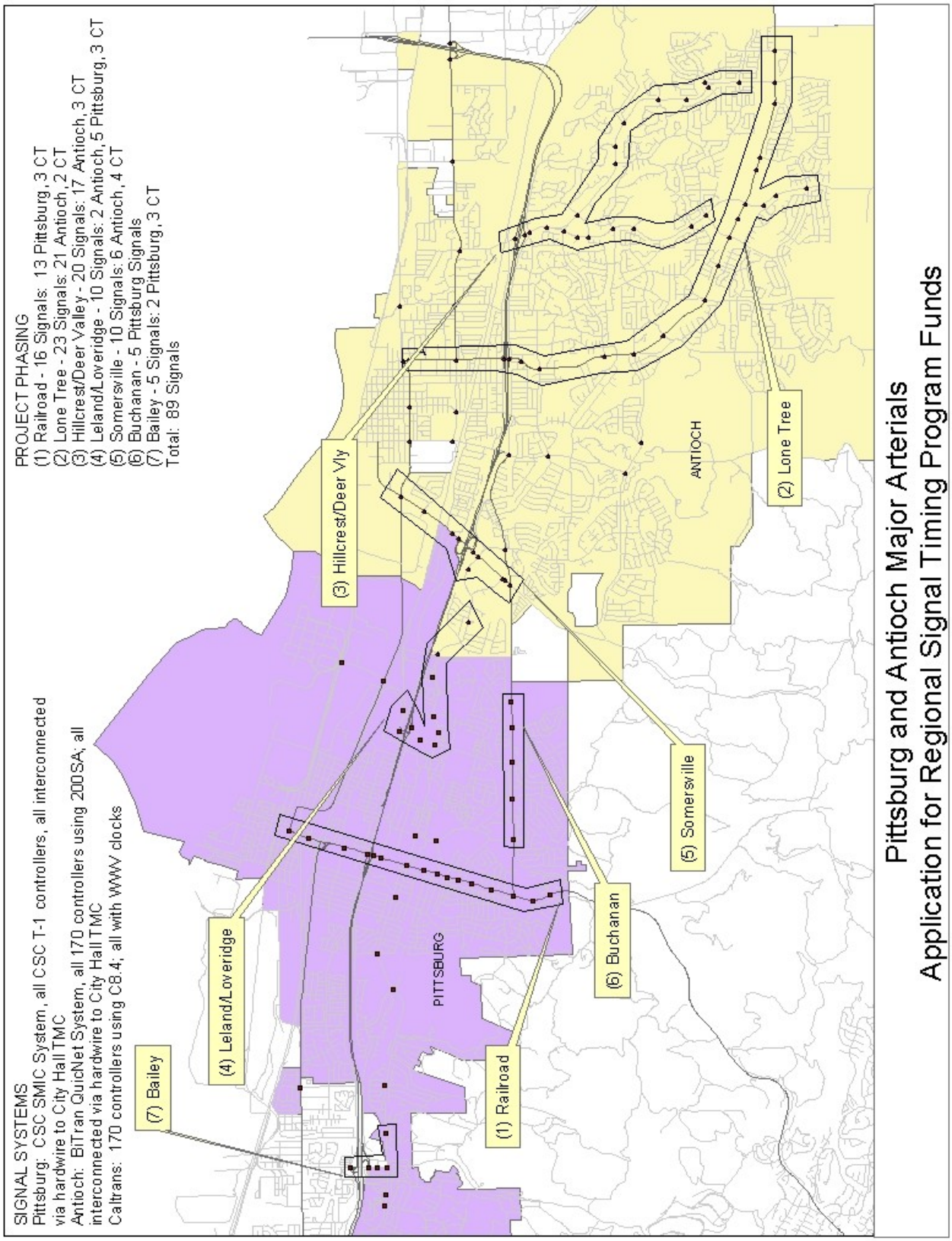
DEMONSTRATION OF SUPPORT AND APPLICATION SIGNATURES

Attach letters of support from all participating agencies or have an official from the other participating agencies sign this application along with the project sponsor. By providing letters of support and/or signing the application, the signator affirms that the statements contained in the application package are true and complete to the best of their knowledge.

Signature	Signature	Signature
Joel McDaniel/Pittsburg	Ed Franzen/Antioch	Paul Chiu/Caltrans
Signature	Signature	Signature
Name/Agency	Name/Agency	Name/Agency

List of Signals:

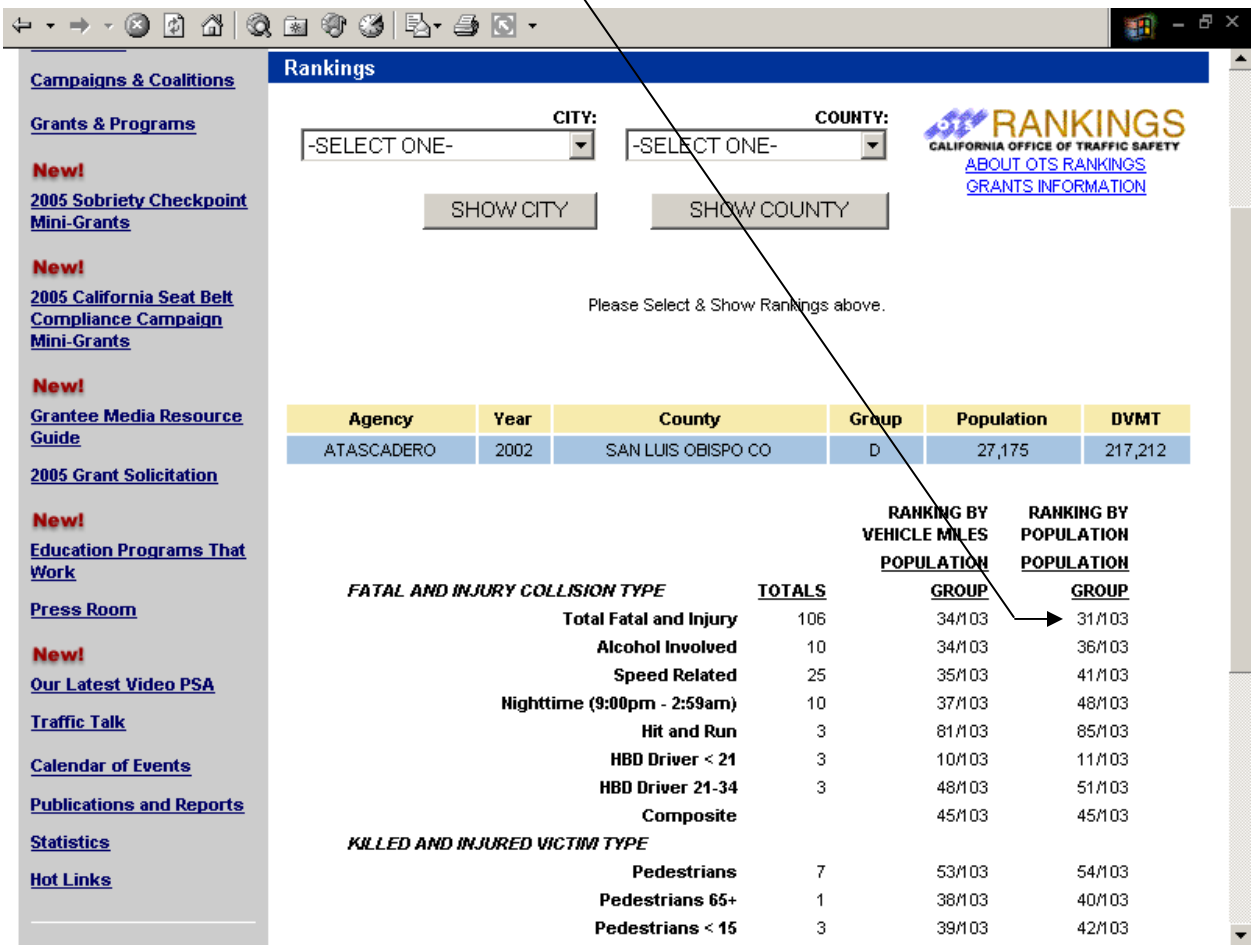
No.	N/S Street	E/W Street	Owner
1	Bailey Road	W. Leland Road	Pittsburg
2	Bailey Road	Maylard Street	Pittsburg
3	Gladstone Drive	E. Leland Road	Pittsburg
4	Harbor Street	E. Leland Road	Pittsburg
5	Harbor Street/Camp	Buchanan Road	Pittsburg
6	Highway 4 W/B Ran	California Avenue	Caltrans
7	Lakeview Circle/Los	E. Leland Road	Pittsburg
8	Loveridge Road	Wal-Mart Center	Pittsburg
9	Loveridge Road	E. Leland Road	Pittsburg
10	Loveridge Road	Buchanan Road	Pittsburg
11	Loveridge Road	California Ave/N. Pa	Pittsburg
12	Loveridge Road	14th Street/Pittsburg	Pittsburg
13	Loveridge Road	Highway 4 E/B Ramp	Caltrans
14	Meadows Avenue	Buchanan Road	Pittsburg
15	Railroad Avenue	W. 10th Street/E. 10	Pittsburg
16	Railroad Avenue	Civic Avenue/Oak Pl	Pittsburg
17	Railroad Avenue	W. Leland Road/E. L	Pittsburg
18	Railroad Avenue	Atlantic Avenue	Pittsburg
19	Railroad Avenue	Linscheid Drive/Drive	Pittsburg
20	Railroad Avenue	Buchanan Road	Pittsburg
21	Railroad Avenue	Castlewood Drive	Pittsburg
22	Railroad Avenue	Pheasant Drive	Pittsburg
23	Railroad Avenue	Central Avenue	Pittsburg
24	Railroad Avenue	Yosemite Drive	Pittsburg
25	Railroad Avenue	West Boulevard/Mar	Pittsburg
26	Railroad Avenue	Alvarado Avenue	Pittsburg
27	Railroad Avenue	Frontage Road/Bliss	Pittsburg
28	Railroad Avenue	Sierra Drive/Marks E	Pittsburg
29	Suzanne Drive	Buchanan Road	Pittsburg
30	Ventura Drive	Buchanan Road	Pittsburg
31	Wal-Mart Center	E. Leland Road	Pittsburg
32	Bluerock Drive/Golf	Lone Tree Way	Antioch
33	Blythe Drive/Commu	James Donlon Boule	Antioch
34	Community Park/Hig	Lone Tree Way	Antioch
35	Contra Loma Boulev	Putnam Street	Antioch
36	Contra Loma Boulev	Contra Loma Plaza	Antioch
37	Contra Loma Boulev	Buchanan Road/Fitz	Antioch
38	Country Hills Drive/N	Lone Tree Way	Antioch
39	Deer Valley Plaza	Lone Tree Way	Antioch
40	Deer Valley Road	Safeway Shopping C	Antioch
41	Deer Valley Road	Lone Tree Way	Antioch
42	Deer Valley Road	Carpinteria Drive	Antioch
43	Deer Valley Road	Wildflower Drive	Antioch
44	Deer Valley Road	Marita Drive/Prewett	Antioch
45	Deer Valley Road	Prewett Ranch Drive	Antioch
46	Deer Valley Road	Asilomar Drive	Antioch
47	Deer Valley Road	Country Hills Dri	Antioch
48	Deer Valley Road	Bluerock	Antioch
49	Deer Valley Road	Trail/High Schoo	Antioch
50	Delta Fair Bouleva	Buchanan Road	Antioch
51	Eagleridge Drive/D	Lone Tree Way	Antioch
52	G Street	10th Street	Antioch
53	G Street	W. 18th Street	Antioch
54	Hillcrest Avenue	E. 18th Street	Antioch
55	Hillcrest Avenue	E. Tregallas Roa	Antioch
56	Hillcrest Avenue	Bellflower Drive	Antioch
57	Hillcrest Avenue	Country Hills Dri	Antioch
58	Hillcrest Avenue	Davison Drive/D	Antioch
59	Hillcrest Avenue	Deerfield	Antioch
60	Hillcrest Avenue	Lone Tree Way	Antioch
61	Hillcrest Avenue	Sterling Heights	Antioch
62	Hillcrest Avenue	Sterling Heights	Antioch
63	Hillcrest Avenue	Golden Bear Dri	Antioch
64	Hillcrest Avenue	Hillcrest Shoppi	Antioch
65	Indian Hills Drive	Lone Tree Way	Antioch
66	Kaiser/East Count	Delta Fair Boule	Antioch
67	L Street	W. 10th Street	Antioch
68	L Street	Fair Grounds/W	Antioch
69	Lone Tree Way	Raley's Shoppin	Antioch
70	Lone Tree Way	Putnam Street/V	Antioch
71	Lone Tree Way	W. Tregallas Ro	Antioch
72	Lone Tree Way	James Donlon E	Antioch
73	Muirwood Way/Bla	Lone Tree Way	Antioch
74	Sagebrush Drive	Lone Tree Way	Antioch
75	School Street (Tur	Delta Fair Boule	Antioch
76	Shipyard Road/Ca	Wilbur Avenue	Antioch
77	Somersville Road	Buchanan Road	Antioch
78	Somersville Road	Delta Fair Boule	Antioch
79	Somersville Road	Pittsburg-Antioc	Antioch
80	Somersville Road	Century Plaza/S	Antioch
81	Somersville Road	Century Bouleva	Antioch
82	Somersville Road	Costco Way/W.	Antioch
83	Somersville Road	Fairview Drive	Antioch
84	Somersville Road	East County Ma	Antioch
85	Via Dora Drive	Hillcrest Avenue	Antioch
86	Viera Avenue	E. 18th Street	Antioch
87	Vista Grande	Lone Tree Way	Antioch
88	Wild Horse Road	Hillcrest Avenue	Antioch
89	Wildflower Drive	Hillcrest Avenue	Antioch


Pittsburg and Antioch Major Arterials
Application for Regional Signal Timing Program Funds
PROJECT PHASING
(1) Railroad - 16 Signals: 13 Pittsburg, 3 CT
(2) Lone Tree - 23 Signals: 21 Antioch, 2 CT
(3) Hillcrest/Deer Valley - 20 Signals: 17 Antioch, 3 CT
(4) Leland/Loveridge - 10 Signals: 2 Antioch, 5 Pittsburg, 3 CT
(5) Somersville - 10 Signals: 6 Antioch, 4 CT
(6) Buchanan - 5 Pittsburg Signals
(7) Bailey - 5 Signals: 2 Pittsburg, 3 CT
Total: 89 Signals
SIGNAL SYSTEMS
Pittsburg: CSC SMIC System, all CSC T-1 controllers, all interconnected via hardwire to City Hall TMC
Antioch: BiTran QuicNet System, all 170 controllers using 200SA; all interconnected via hardwire to City Hall TMC
Caltrans: 170 controllers using C8.4; all with WWV clocks
(7) Bailey
(4) Leland/Loveridge
(3) Hillcrest/Deer Vly
(2) Lone Tree
(1) Railroad
(6) Buchanan
(5) Somersville
PITTSBURG
ANTIOCH

Appendix C Office of Traffic Safety Rankings

From www.ots.ca.gov/cgi-bin/rankings.pl

Ranking by Population for Total Fatal and Injury Collisions



Campaigns & Coalitions
Grants & Programs
New!
2005 Sobriety Checkpoint Mini-Grants
New!
2005 California Seat Belt Compliance Campaign Mini-Grants
New!
Grantee Media Resource Guide
2005 Grant Solicitation
New!
Education Programs That Work
Press Room
New!
Our Latest Video PSA
Traffic Talk
Calendar of Events
Publications and Reports
Statistics
Hot Links

Rankings

CITY: -SELECT ONE-
COUNTY: -SELECT ONE-
SHOW CITY
SHOW COUNTY

RANKINGS
CALIFORNIA OFFICE OF TRAFFIC SAFETY
ABOUT OTS RANKINGS
GRANTS INFORMATION

Please Select & Show Rankings above.

Agency	Year	County	Group	Population	DVMT
ATASCADERO	2002	SAN LUIS OBISPO CO	D	27,175	217,212

FATAL AND INJURY COLLISION TYPE	TOTALS	RANKING BY VEHICLE MILES POPULATION GROUP	RANKING BY POPULATION POPULATION GROUP
Total Fatal and Injury	106	34/103	31/103
Alcohol Involved	10	34/103	36/103
Speed Related	25	35/103	41/103
Nighttime (9:00pm - 2:59am)	10	37/103	48/103
Hit and Run	3	81/103	85/103
HBD Driver < 21	3	10/103	11/103
HBD Driver 21-34	3	48/103	51/103
Composite		45/103	45/103
KILLED AND INJURED VICTIM TYPE			
Pedestrians	7	53/103	54/103
Pedestrians 65+	1	38/103	40/103
Pedestrians < 15	3	39/103	42/103

Appendix D Bay Area Pollution Summaries

Days Exceeded 1-Hr National Standard

Days Exceeded 1-Hr State Standard

Days Exceeded 8-Hr National Standard

BAY AREA AIR POLLUTION SUMMARY — 2003

—See NOTES on back of this page

MONITORING STATIONS	OZONE							CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}				$PM_{2.5}$				
	Max 1-Hr	Nat Days	Cal Days	3-Yr Avg	Max 8-Hr	Nat Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/Cal Days	Max 1-Hr	Ann Avg	Nat/Cal Days	Max 24-Hr	Ann Avg	Nat/Cal Days	Ann Avg	Max 24-Hr	Nat Days	Cal Days	Max 24-Hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(pphm)				(pphm)			(ppm)			(pphm)			(ppb)			(µg/m³)				(µg/m³)			(µg/m³)	
Napa	11	0	2	0.0	8	0	6.5	4.7	2.5	0	7	1.2	0	-	-	-	21.3	41	0	0	-	-	-	-	-
San Rafael	9	0	0	0.0	7	0	4.9	3.8	2.0	0	7	1.6	0	-	-	-	17.6	41	0	0	-	-	-	-	-
Santa Rosa	10	0	1	0.0	8	0	5.4	3.1	1.8	0	6	1.2	0	-	-	-	16.9	36	0	0	39	0	37.9	8.8	10.0
Vallejo	10	0	2	0.0	7	0	6.5	4.0	2.9	0	7	1.2	0	5	1.2	0	17.3	39	0	0	31	0	35.0	9.4	11.8
Coast & Central Bay																									
Oakland	8	0	0	0.0	5	0	4.0	3.9	2.8	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Richmond	-	-	-	-	-	-	-	-	-	-	-	-	-	5	0.9	0	-	-	-	-	-	-	-	-	-
San Francisco	9	0	0	0.0	6	0	4.8	3.6	2.8	0	7	1.8	0	7	2.2	0	22.7	52	0	1	42	0	47.3	10.1	11.6
San Pablo	9	0	0	0.0	7	0	5.3	3.1	1.8	0	7	1.3	0	5	1.5	0	20.6	49	0	0	-	-	-	-	-
Eastern District																									
Bethel Island	9	0	0	0.3	8	0	7.9	1.6	0.9	0	5	0.9	0	6	2.2	0	19.4	51	0	1	-	-	-	-	-
Concord	10	0	5	0.3	9	1	8.2	3.2	2.0	0	6	1.3	0	3	0.6	0	16.4	34	0	0	50	0	41.0	9.7	11.2
Crockett	-	-	-	-	-	-	-	-	-	-	-	-	-	6	1.2	0	-	-	-	-	-	-	-	-	-
Fairfield	9	0	0	0.0	8	0	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livermore	13	1	10	1.0	9	3	8.4	3.7	1.9	0	7	1.6	0	-	-	-	18.9	33	0	0	42	0	43.0	9.0	11.6
Martinez	-	-	-	-	-	-	-	-	-	-	-	-	-	7	1.6	0	-	-	-	-	-	-	-	-	-
Pittsburg	9	0	0	0.0	8	0	7.5	3.4	1.7	0	6	1.2	0	8	2.1	0	21.1	59	0	1	-	-	-	-	-
South Central Bay																									
Fremont	12	0	4	0.0	9	1	6.5	3.2	1.9	0	8	1.7	0	-	-	-	18.2	37	0	0	34	0	37.4	8.7	11.1
Hayward	12	0	3	0.0	9	1	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redwood City	11	0	1	0.0	8	0	5.8	5.4	2.6	0	8	1.5	0	-	-	-	19.8	38	0	0	34	0	37.7	9.0	10.6
San Leandro	10	0	2	0.0	7	0	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santa Clara Valley																									
Gilroy	11	0	6	0.0	9	2	8.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Los Gatos	12	0	7	0.0	10	2	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose Central*	12	0	4	*	8	0	*	5.5	4.0	0	9	2.1	0	-	-	-	23.6	60	0	3	56	0	*	11.7	*
San Jose East	10	0	2	0.0	7	0	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose, Tully Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.8	58	0	2	52	0	40.2	10.1	11.1
San Martin	11	0	9	0.0	9	4	8.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunnyvale	11	0	4	0.0	9	2	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Bay Area Days over Standard		1	19			7				0			0			0			0	6		0			

*See notes of explanation on back of this page

2003 Bay Area Pollution Summary

Appendix D Bay Area Pollution Summaries (cont'd)

Days Exceeded 1-Hr National Standard

Days Exceeded 1-Hr State Standard

Days Exceeded 8-Hr National Standard

BAY AREA AIR POLLUTION SUMMARY — 2002

—See NOTES on back of this page

MONITORING STATIONS	OZONE							CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}					$PM_{2.5}$				
	Max 1-Hr	Nat Days	Cal Days	3-Yr Avg	Max 8-Hr	Nat Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/Cal Days	Max 1-Hr	Ann Avg	Nat/Cal Days	Max 24-Hr	Ann Avg	Nat/Cal Days	Ann Geo Mean	Ann Avg	Max 24-Hr	Nat Days	Cal Days	Max 24-Hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(pphm)				(pphm)			(ppm)			(pphm)			(ppb)			($\mu g/m^3$)					($\mu g/m^3$)			($\mu g/m^3$)	
Napa	12	0	1	0.0	8	0	6.3	4.2	2.4	0	5	1.3	0	-	-	-	22.6	25.4	67	0	4	-	-	-	-	-
San Rafael	8	0	0	0.0	6	0	4.7	4.1	1.9	0	6	1.7	0	-	-	-	19.1	21.4	70	0	2	-	-	-	-	-
Santa Rosa	8	0	0	0.0	6	0	5.2	3.7	2.1	0	5	1.3	0	-	-	-	17.8	19.7	60	0	2	51	0	40.2	10.5	10.5
Vallejo	11	0	1	0.0	7	0	5.9	5.8	3.9	0	5	1.3	0	4	1.3	0	18.7	21.4	80	0	1	72	1	51.3	13.6	12.6
Coast & Central Bay																										
Oakland	5	0	0	0.0	4	0	4.0	4.4	3.3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Richmond	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1.0	0	-	-	-	-	-	-	-	-	-	-
San Francisco	5	0	0	0.0	5	0	4.4	3.5	2.6	0	8	1.9	0	6	1.9	0	21.0	24.7	74	0	2	70	4	48.0	13.1	11.9
San Pablo*	7	0	0	0.0	5	0	4.5	3.7	1.8	0	5	*	0	5	*	0	*	*	67	0	3	-	-	-	-	-
Eastern District																										
Bethel Island	11	0	5	0.3	10	3	7.9	1.7	1.3	0	4	1.0	0	9	2.5	0	20.8	23.8	58	0	3	-	-	-	-	-
Concord	10	0	5	0.7	9	3	7.8	3.5	2.3	0	6	1.5	0	6	0.8	0	17.9	20.9	63	0	3	77	4	44.7	13.3	11.4
Crockett	-	-	-	-	-	-	-	-	-	-	-	-	-	12	1.8	0	-	-	-	-	-	-	-	-	-	-
Fairfield*	10	0	4	0.0	8	0	7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livermore	16	2	10	1.0	11	6	8.2	4.8	2.5	0	8	1.7	0	-	-	-	21.5	24.5	64	0	2	62	0	47.7	13.8	12.3
Martinez	-	-	-	-	-	-	-	-	-	-	-	-	-	7	1.2	0	-	-	-	-	-	-	-	-	-	-
Pittsburg	11	0	4	0.0	10	2	7.4	6.2	2.5	0	5	1.3	0	14	2.5	0	21.1	23.7	73	0	3	-	-	-	-	-
South Central Bay																										
Fremont	11	0	3	0.0	7	0	6.1	3.7	2.2	0	6	1.9	0	-	-	-	20.0	22.5	52	0	1	48	0	41.6	12.5	11.4
Hayward	9	0	0	0.0	7	0	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redwood City	9	0	0	0.0	6	0	5.3	5.8	2.8	0	7	1.7	0	-	-	-	19.5	22.0	53	0	1	43	0	41.8	11.5	11.3
San Leandro	10	0	1	0.0	6	0	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santa Clara Valley																										
Gilroy*	12	0	6	*	9	2	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Los Gatos*	11	0	4	0.0	9	2	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose Central*	*	*	*	*	*	*	*	5.3	4.5	0	8	*	0	-	-	-	*	*	70	0	2	58	0	*	*	*
San Jose East	9	0	0	0.0	7	0	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose, Tully Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21.9	25.4	70	0	2	54	0	45.9	12.0	11.8
San Martin	12	0	8	0.0	10	5	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunnyvale*	9	0	0	*	7	0	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Bay Area Days over Standard		2	16			7				0			0			0				0	6		5			

*See notes of explanation on back of this page

2002 Bay Area Pollution Summary

Appendix D Bay Area Pollution Summaries (cont'd)

Days Exceeded 1-Hr National Standard

Days Exceeded 1-Hr State Standard

Days Exceeded 8-Hr National Standard

BAY AREA AIR POLLUTION SUMMARY — 2001

—See notes of explanation on back of this page

MONITORING STATIONS	OZONE							CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}				
	Max 1-Hr	Nat Days	Cal Days	3-Yr Avg	Max 8-Hr	Nat Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/Cal Days	Max 1-Hr	Ann Avg	Nat/Cal Days	Max 24-Hr	Ann Avg	Nat/Cal Days	Ann Geo Mean	Ann Avg	Max 24-Hr	Nat Days*	Cal Days*
North Counties	(pphm)				(pphm)			(ppm)			(pphm)			(ppb)			($\mu g/m^3$)				
Napa	10	0	1	0.0	8	0	6.6	5.7	3.0	0	6	1.3	0	-	-	-	21.4	24.0	91	0	2
San Rafael	9	0	0	0.0	7	0	5.1	5.2	2.4	0	6	1.7	0	-	-	-	18.1	20.4	79	0	2
Santa Rosa	9	0	0	0.0	6	0	5.6	4.8	2.4	0	6	1.3	0	-	-	-	18.4	21.1	74	0	2
Vallejo	9	0	0	0.0	7	0	6.2	5.6	4.1	0	6	1.3	0	4	1.0	0	16.5	19.4	86	0	3
Coast & Central Bay																					
Oakland	7	0	0	0.0	4	0	4.2	5.0	4.0	0	-	-	-	-	-	-	-	-	-	-	-
San Francisco	8	0	0	0.0	5	0	4.6	4.0	3.3	0	7	1.9	0	7	2.1	0	22.9	26.4	67	0	7
San Pablo	9	0	0	0.0	8	0	4.8	2.3	1.4	0	6	1.4	0	5	1.3	0	-	-	-	-	-
Eastern District																					
Bethel Island	13	1	3	0.7	10	2	8.2	2.5	1.5	0	4	1.0	0	7	2.1	0	18.7	22.7	87	0	3
Concord	13	1	6	1.3	9	1	8.1	4.4	2.7	0	7	1.5	0	4	1.1	0	17.8	20.4	106	0	2
Crockett	-	-	-	-	-	-	-	-	-	-	-	-	-	16	1.7	0	-	-	-	-	-
Fairfield	10	0	3	0.3	8	0	7.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livermore	11	0	9	1.3	9	2	8.3	5.8	3.2	0	7	1.7	0	-	-	-	21.1	24.6	109	0	3
Martinez	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1.3	0	-	-	-	-	-
Pittsburg	12	0	2	0.0	9	1	7.3	5.2	2.4	0	6	1.4	0	11	2.7	0	16.6	20.6	98	-	-
South Central Bay																					
Fremont	11	0	3	0.3	8	0	6.2	5.4	2.7	0	8	1.9	0	-	-	-	20.8	23.4	58	0	3
Hayward	10	0	2	0.0	9	1	6.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redwood City	11	0	1	0.0	7	0	4.9	7.1	3.9	0	7	1.7	0	-	-	-	19.9	22.6	65	0	4
San Leandro	9	0	0	0.0	6	0	5.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santa Clara Valley																					
Gilroy	12	0	3	0.0	10	2	7.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Los Gatos	12	0	2	0.0	9	1	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose, 4th Street	11	0	2	0.0	7	0	6.0	7.6	5.1	0	11	2.4	0	-	-	-	25.6	28.9	77	0	4
San Jose East	9	0	0	0.0	6	0	5.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose, Tully Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.2	22.8	75	0	4
San Martin	12	0	7	0.3	9	2	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunnyvale	8	0	0	-	6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Bay Area Days over Standard		1	15			7				0			0			0	*Since PM_{10} is only sampled every sixth day, actual days over standard can be estimated to be six times the numbers shown.			0	10

2001 Bay Area Pollution Summary

Appendix E Sample Waiver of Claims and Indemnification

WAIVER OF CLAIMS AND INDEMNIFICATION AGREEMENT
Between METROPOLITAN TRANSPORTATION COMMISSION And AGENCY NAME

THIS AGREEMENT is made and entered into as of the insert day day of insert month, 2008, by and between the Metropolitan Transportation Commission, a regional transportation planning agency established pursuant to California Government Code § 66500 et seq., (herein called "MTC"), and agency name (herein called "CITY"/"COUNTY"/"TOWN").

WITNESSETH

WHEREAS, MTC has entered into a technical services agreement with several consulting firms (herein called "the Consultants"), under which the firms will provide assistance to various Bay Area cities in the retiming of traffic signals in those cities (herein called "the Project"); and

WHEREAS, CITY/COUNTY/TOWN is participating in the Project by receiving assistance from one of the Consultants (herein called "the Consultant");

WHEREAS, the parties wish to define CITY's/COUNTY's/TOWN's obligations to MTC respecting waiver of claims and indemnity;

NOW, THEREFORE, the parties hereto agree as follows:

1.0 WAIVER OF CLAIMS AGAINST MTC

CITY/COUNTY/TOWN waives all claims by CITY/COUNTY/TOWN, its directors, supervisors, officers, employees, or agents against MTC, its commissioners, officers, and/or employees for damages, loss, injury and/or liability, direct or indirect, resulting from CITY's/COUNTY's/TOWN's participation in the Project and/or the services provided to CITY/COUNTY/TOWN by the Consultant under contract to MTC. CITY's/COUNTY's/TOWN's waiver shall not apply to liability arising from and caused by the adjudicated or admitted negligence or willful misconduct of MTC, its commissioners, officers, and/or employees.

2.0 INDEMNIFICATION AND DEFENSE

CITY/COUNTY/TOWN agrees to indemnify, hold harmless and defend MTC, its commissioners, officers, and employees from any and all third party claims, demands, lawsuits, liability, loss, damages, injury and/or liability, direct or indirect (including any and all costs and expenses in connection therewith), resulting from or in connection with provision of services to CITY/COUNTY/TOWN by the Consultant under contract with MTC, to the extent such claims, demands, etc. are not covered by the Consultant's indemnification of MTC in the Consultant's contract with MTC. CITY's/COUNTY's/TOWN's indemnification obligation shall not apply to liability arising from and caused by the adjudicated or admitted negligence or willful misconduct of MTC, its commissioners, officers, agents, and employees.

IN WITNESS WHEREOF, this agreement has been executed by the parties hereto as of the date first written above.

METROPOLITAN TRANSPORTATION COMMISSION	AGENCY NAME
Steve Heminger, Executive Director	Name of Authorized Signator, Title

Appendix F Consultant Indemnification of MTC and Client Jurisdictions

Consultants are required to indemnify and hold harmless MTC and all client jurisdictions from any and all claims, demands, suits, loss, damages, injury, and/or liability, direct or indirect (including any and all costs and expenses in connection therewith), incurred by reason of any negligent or otherwise wrongful act or omissions of the consultants; and, at their own cost, expense, and risk, to defend any and all claims, actions, suits, or other legal proceedings brought or instituted against MTC and all client jurisdictions, arising out of such negligent or otherwise wrongful act or omission, and to pay and satisfy any resulting judgments.

The indemnification obligation shall not apply to liability arising from and caused by the adjudicated or admitted negligence or willful misconduct of MTC or any client jurisdictions. If the adjudicated or admitted negligence or willful misconduct of MTC or any of the client jurisdictions contributes to a loss, the consultant shall not be obligated to indemnify such indemnitee for the proportionate share of such loss caused by such negligence or willful misconduct.

Appendix G Consultant Insurance Requirements

Consultant must obtain and maintain at their own expense the following types of insurance for the duration of the agreement: (1) Worker's Compensation Insurance, as required by the law, and Employer's Liability Insurance in an amount no less than $1,000,000; (2) Commercial General Liability Insurance with a combined single limit of not less than $1,000,000 for injury to any one person and for any one occurrence and $2,000,000 general aggregate applying separately to this project; (3) Automobile Liability Insurance in an amount no less than $1,000,000; and (4) Errors and Omissions Insurance in the amount of $1,000,000. The Commercial General Liability Insurance policy shall contain an endorsement to include MTC, its Commissioners, officers, representatives, agents and employees and all client jurisdictions as additional insureds and to specify that such insurance is primary and that no MTC or client jurisdiction insurance will be called on to contribute to a loss. Certificates of insurance verifying the coverages and the required endorsements and signed by an authorized representative of the insurer must be delivered to MTC prior to issuance of any payment under the Agreement by MTC.